

THE  
PSYCHOLOGICAL BULLETIN

---

MEMORY OF SKILLFUL MOVEMENTS.

BY PROFESSOR EDGAR JAMES SWIFT,

*Washington University, St. Louis.*

The purpose of this investigation was to determine the length of time that would be needed to attain a degree of skill in typewriting equal to that which the writer had acquired in 1903 at the close of his investigation<sup>1</sup> of this type of learning.

The experimental work of which this is the memory test closed on December 25, 1903. This test was begun January 29, 1906. Two years and thirty-five days had therefore passed, and during that time the subject (the writer) had not touched any style of typewriter until one week before the present test was undertaken, when he wrote a short letter of about fifty words. The apparent ease with which these few words were written after the lapse of so much time was so striking that a memory test was at once decided upon. The test lasted ten days with the omission of the intervening Saturday and Sunday. In order that the significance of the curve may be more evident the original curve showing the progress made by the subject in the regular learning practice of two years and thirty-five days ago is repeated here. Curve 1 is the regular learning curve and 2 is the memory curve giving the results of the test just completed.

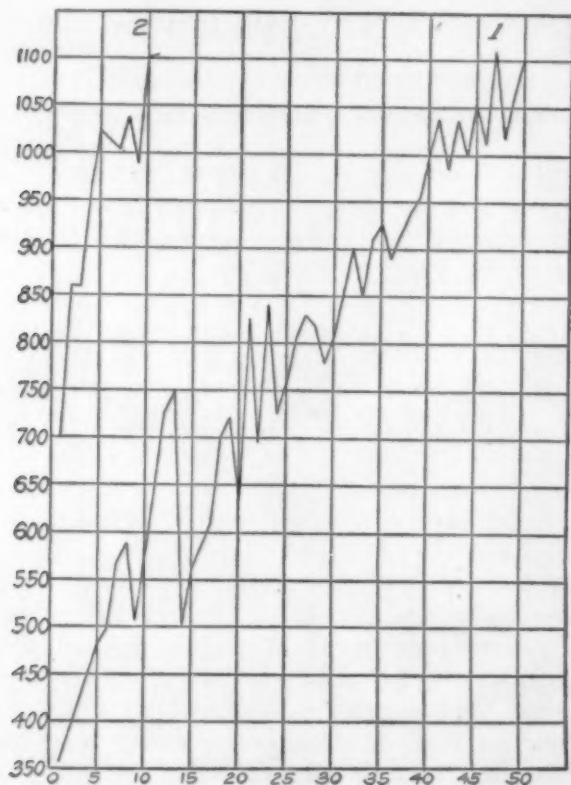
As will be seen from the curves the original investigation covers a period of fifty days, while in the memory test only eleven days were required to reach the degree of proficiency with which the original investigation closed. As a matter of fact practice was omitted on five of the fifty original practice days and once during the memory test. The actual number of days of work was therefore forty-five in the former and ten in the latter. In both cases Sundays were omitted.

The length of each day's test was one hour, as in the original in-

<sup>1</sup>'The Acquisition of Skill in Type Writing; a Contribution to the Psychology of Learning,' PSYCHOLOGICAL BULLETIN, vol. I., p. 295.

vestigation, and the same typewriter was used in both instances. The number of words written during the hour is shown to the left of the vertical line and the days are given below the horizontal line.

In beginning the original investigation<sup>1</sup> the subject was able to finger out three hundred and fifty-five words during the first hour. In the present memory test, as will be seen from the curve, after an interval of two years and thirty-five days, the subject began the work



with the ability to write seven hundred words during the first hour, and in nine days of practice, work being omitted on one day when the subject was not in his normal condition, he regained the skill which he had acquired at the close of his regular practice of forty-five working days two years and thirty-five days before. The rapidity of ascent in comparison with the original curve, as well as the difference in the

<sup>1</sup> *Loc. cit.*

lines of direction of the two curves, are striking. Beginning with a score nearly twice that made on the first day of the original investigation the subject made a gain of one hundred and sixty words the second day. The failure to advance on the third day was partly due, at least, to the fact that the subject had attended a banquet the night before and was 'out of condition.' On the fourth day another advance of practically a hundred points was scored and fifty-eight on the fifth day. Here, at a score of ten hundred and twenty-three, the first real delay was met, but it was so near the subject's maximal record that it was not surprising. Five days were now needed to reach the permanent score of the original practice work.

From the start the subject wrote with a feeling of ease that was very different from the strain of the earlier work as shown by the notes for those days. During the first few days it seemed to be a matter of reëxcitation of nervous centers and of stirring to renewed activity habitual associations that had lain for the time dormant. There was a tendency to strike the keys quicker than at the corresponding time of the original investigation, and this brought increasing liability to error. One reason why this quicker movement did not bring greater rapidity was that the subject would repeatedly catch himself in the act of striking the letter adjoining the correct one, and recovery from this, with effort to find the right key, lost time. The fact that the fingers went without delay to approximately the right place shows that the old associations of muscular location were still ready to function at call, but slightly inaccurate. Indeed the whole process seemed to the subject to be the reinstatement of accuracy rather than the making of new associations. The nervous alterations that represent the physiological basis of memory evidently remained fixed during the intervening period and all that was needed to bring the old accuracy of discharge was a few days of practice. Besides the introspective evidence, which clearly showed this, the same thing is indicated by the rapidity with which the curve ascends. The same persistence of memory through long periods has been demonstrated by the writer<sup>1</sup> in keeping two balls in the air with one hand and by Bourdon<sup>2</sup> in various mental processes.

<sup>1</sup> *American Jour. of Psychology*, vol. 16, p. 131.

<sup>2</sup> *L'Année psychologique*, vol. 8, p. 327.

## PSYCHOLOGICAL LITERATURE.

### MEMORY.

*Ueber das Gedächtnis für affectiv-bestimmte Eindrücke.* KATE GORDON. Archiv f. d. ges. Psychol., 1905, IV., 437-458.

*Bemerkung zu vorstehender Abhandlung.* O. KÜLPE. Ibid., 459-464.

Miss Gordon's experiments were undertaken to determine if possible whether the pleasantness or unpleasantness of certain visual sensations has an influence on the *accuracy* of the memory of these experiences. As material the experimenter used series of colored figures, of simple symmetrical designs, which were shown to the subject for a certain length of time and then immediately described by him. The test of memory was the accuracy of this verbal description. Each figure was classed according to the introspection of the subject as pleasant, unpleasant, or indifferent, and also, because of unavoidable differences in the ease or difficulty of comprehending the several figures, as hard, medium hard, or easy. Each series was repeated after an interval of three weeks.

The conclusions were almost entirely negative. No real difference could be detected between the pleasant, unpleasant, and indifferent cases, either in accuracy of memory or in the per cent. of figures recognized when seen for the second time. The only difference observed between pleasantness and unpleasantness was a tendency to remember earlier experiences as pleasanter than they really were. This, in the writer's opinion, is the true meaning of the so-called 'optimism of memory.'

In discussing her results in comparison with those of other investigators, Miss Gordon draws a distinction between a direct and an indirect influence of affective tone on memory. She is of the opinion that although an affective tone cannot be proved to influence directly the reproducibility of an impression, yet by affecting the attention it does 'tend to bring about the conditions for an act of association.' It is not clear from the context whether the conclusion drawn in the clause just quoted is an inference from the experimental results or is an assumption based on general observation.

In a brief article following Miss Gordon's, Professor Külpe indi-

cates the most important results of these experiments. He points out that (1) the conclusions agree with a large group of facts, designated as the 'emancipation of the intellect and will from the feelings of pleasantness and unpleasantness'; that (2) the pleasantness or unpleasantness of an experience has no effect on the recognition of that experience. Pleasantness and unpleasantness as such are not sufficiently differentiated to serve as a clue for recognition.

In criticism of the experiments Külpe notes especially the fact that the method used for classifying the figures, according to the individual opinion of the subjects, introduces variations which are not taken account of in the results.

Another criticism of the experiments, not mentioned by Professor Külpe but one which seems to the reviewer to be of importance, is the fact that the very complexity of the figures necessary to produce any feeling of pleasantness or unpleasantness in the subject made it difficult to trace any direct influence of those affective values on the memory. Each figure *as a whole* had affective value for the subject, but it was the reproducing of the *details* of the figure which served as a test for the memory. From the outset, therefore, the real problem concerned the influence which the affective tone of a complex experience has on the attention to the details of that experience, and thus, indirectly, on the accuracy with which it is remembered. Miss Gordon does not seem to distinguish between the affective values of the whole and of the parts.

HELEN D. COOK.

WELLESLEY COLLEGE.

*Zur Frage über den zeitlichen Verlauf des Gedächtnisbildes für verschiedene Sinnesreize.* GISELA SCHAEFER. Zeitsch. f. Psychol., 1906, XL., 55-73.

The author describes the outcome of a series of experiments designed to show the relative value of auditory, visual and tactile sensations for memory. The subject reproduced, at certain intervals, different time-periods transmitted to him by means of an incandescent lamp, electric bell or faradic shock. For auditory sensations, 43 experiments were performed, with 19 persons; for visual, 28 experiments with 23 persons; for tactile, 14 experiments with 11 persons. All persons experimented on were students, physicians or lawyers. The difference of sex does not show any effect upon the results of the experiments.

In summing up the results of the experiments, reactions are called correct when they show a more or less exact reproduction of the time-



intervals; they are called steady when the characteristics, shown at the beginning of the experiment, remain, more or less plainly, throughout its full length.

Of 43 auditory reactions 21 were more or less correct; of 28 visual and 14 tactile tests one for each class was correct. Correct reproduction of time-intervals, at the beginning of the experiment, appeared as follows: for auditory tests in about  $\frac{2}{3}$ , for visual in less than  $\frac{1}{3}$ , for tactile in less than  $\frac{1}{4}$  of the whole number of reactions. The greatest number of correct reactions was found in the reproduction of intervals limited by auditory stimuli, the least number in that of tactile stimuli; this leads to the conclusion that the memory for auditory sensations is better than for visual sensations, and for both of these better than for tactile stimuli.

Of the remaining reactions, started correctly, some show an acceleration later on, and some become slower. All auditory and one half of the visual tests become more rapid; of the tactile  $\frac{1}{3}$  accelerate,  $\frac{1}{3}$  become slower and  $\frac{1}{3}$  remain uniform, more or less.

The auditory experiments, which were started with an acceleration, continue to be so, in most cases; the same class of visual tests shows a still more decided acceleration. Of the tactile tests of this class, a little less than  $\frac{1}{2}$  become more rapid, about  $\frac{1}{2}$  remain uniform; in one case the reaction becomes slower. One cannot help noticing the comparatively large number (seven) accelerated at the outset. Of the experiments begun with a reaction slower than the signal, the most of the auditory tests show an acceleration later on; the same is noticed for  $\frac{1}{2}$  of the visual and tactile sensations. Experiments started with accelerated or retarded reaction do not show any correct reactions later on, for any length of time. An extraordinary duration of the experiment does not affect the result in  $\frac{1}{2}$  of the visual, and in less than  $\frac{2}{3}$  of the tactile tests. In other cases, a more or less sudden acceleration or retardation takes place, which may be interpreted as the effect of fatigue.

JOHN WEICHSSEL.

NEW YORK UNIVERSITY.

#### REACTION TIME.

*Ueber die Willenstätigkeit und das Denken.* NARITZ ACH. Göttingen, Vandenhoeck u. Ruprecht, 1905. Pp. 249.

This is an attempt at an analysis of the will by means of the ordinary reaction experiments, and especially by means of the introspective reports of the subjects. This of course raises the question of the

validity of introspection as a psychological method. The author in the beginning goes to some length in an attempt to justify it, sensibly in the reviewer's opinion, on the ground of the 'Perseverationstendenz,' which is discussed at some length in G. E. Müller and Pilzecker's study of memory. By this 'Tendenz' is meant the actual persistence of a mental experience or experiences, so that they can be examined in a later moment in their proper order of sequence. This 'Tendenz' is intensified by attention. Though the author does not expressly say so, he might have urged that it obviates, to some extent at least, one objection that is invariably brought up by the opponents of the method of introspection, namely, that it is no more reliable than memory itself. Of course the author assumes — and his opponents may say that he does so without warrant — that the experiences reported by his subjects are those which have persisted from the preceding moments and not something entirely different.

The usual reaction apparatus and methods were used in these experiments. The stimulus was always visual: cards variously colored and marked. Both operator and subject were seated in the same room — an irregularity which could not be avoided without giving over the method of verbal reports of introspections or using telephonic communication which proved distracting. All experiments were performed without knowledge and the subjects were without experience in psychological experiments. But 39 days were occupied with the work and only 218 experiments were performed; an unusually small number to form the basis of such a volume of discussion. The author makes no claim, however, to the statistical value of his work. The subject received the usual instructions to direct his attention in preparation for sensory, muscular, recognition, and discrimination reactions.

The character of the sensory and muscular sets and the reports of the observers lead the author to conclude that there is not sufficient ground for Lange's division of reactions into sensory and muscular types. It was the unanimous testimony of his subjects that the mere perception of a card was sufficient in the muscular series to occasion movement, and that in the sensory series there was no standard of clearness of the perception of white, *e. g.*, on which the movement must follow. No subject was sure that he invariably reacted upon the same phase in the development of this perception. In the course of practice the time of sensory approximated that of muscular reactions. Furthermore, in a series of experiments with 'surprise' stimuli in which the subjects were directed to react only to the white cards, they reacted not once but two or three successive times to a colored card. This occurred in

both sensory and muscular series; a contradiction of Lange's report that such reactions do not occur in a sensory series. This last leads Dr. Ach to believe that complete apperception of the stimulus has no more to do with sensory than with muscular reactions. The mere apperception of a change in the stimulus is sufficient to occasion the movement. On the whole he favors the Wundtian classification of reactions into retarded and accelerated forms. These forms are not determined by the direction of attention but by the purpose to react after the stimulus is clearly perceived or to react as quickly as possible.

But no argument of this kind will carry any weight with the disciples of Lange. If sensory and muscular times come together, they may say that the subject simply is not reacting sensorially at all. If a subject who has been directed to react after apperception of a blue card removes his finger from the key as soon as he is conscious that a change has occurred in the direction of the stimulus, he is not reacting sensorially and of course the time values will differ from those of Lange. If sensory approach muscular times they may say it does not signify a transformation of the sensory into the muscular form, but the gradual adoption of the latter and the exclusion of the former. Thus between Ach and Lange the question becomes one of definition.

No subject was able to report any experience occurring between the moment, of perception of the stimulus and the production of the movement, and hence the author concludes that there is no specific will impulse. The entire process of preparation with the final 'Now I must move,' is identical with will.

The author follows his treatment of the forms of reaction with a discussion of sensations of intended movement localized in the eyes, which indicate the direction of the subsequent movement though it does not necessarily follow. These sensations appear to be of central origin, he says, since they are present even in subjects made anæsthetic by hypnosis. But in the reviewer's opinion he has added nothing to our knowledge of the will either in this or in his long discussion of 'reproduction tendencies' and 'determining tendencies' which can hardly be based securely upon the meager observations he has made.

The volume will be of interest to experimentalists mainly for its treatments of types of reaction.

ROBERT H. GAULT.

WASHINGTON COLLEGE (MD.).



## INTELLECTUAL PROCESSES.

*Experimenteller Beitrag zur Psychologie des Urteils.* ROBERT BÁRÁNY. Ztsch. f. Psychol., 1905, XXXVIII., 34-50.

Dr. Bárány investigated the problems that are involved in recognizing the vertical on the skin of the forehead. An apparatus was devised which would permit a line to be drawn upon the forehead at different inclinations. The most striking result of the experiments at first sight was that there was no regularity in the judgments that were made. The line seemed vertical over a range of ten degrees. Even more peculiar is the fact that in a series of experiments there is a tendency to displace the vertical now in the direction of change and again in the opposed direction, and the tendency in each series will be marked and regular. The author explains the opposed tendencies to error by the differing direction of the attention. When the attention is directed predominately to the original position, the line is not felt as vertical as long as there is any possibility of assigning the original inclination to it. When, on the other hand, attention is directed to the change to be expected the rod is said to be vertical when there is the least warrant for it. The error and the explanation are strongly suggestive of the well-known errors of habituation and expectation, but the reason assigned for the dominance of the one or the other is interesting and ingenious, and probably has applications in other fields.

W. B. PILLSBURY.

UNIVERSITY OF MICHIGAN.

*Counting and Adding.* L. D. ARNETT. Amer. J. of Psychol., 1905, XVI., 327-336.

The aim of this study is to examine psychologically two of the simplest mathematical processes. The author accepts the Hall-Jastrow definition of counting as 'the matching or pairing or approximative synchronization of the terms of two series of events in consciousness,' the series of number names and the series of events to be counted. The experimental work in counting consisted in (1) the counting of a series of like visible objects and (2) of a series of irregularly recurring clicks. In the first series it was found that, beyond a mean distance, speed and accuracy decreased with the increase in the distance of the objects from the observer; that speed increased in counting by groups, ones, twos, etc., but less rapidly as the groups increased; that accuracy was greatest when the counting was by twos and fours. In counting the clicks 'the difficulty lay in coördinating the inner series of number

names, which was a simple and uniform advance with the procession of clicks,' which was irregular. "The point of interest in this experiment is the emphasis which it places upon the simply rhythmic character of the automatic inner series." "The psychical counting mechanism . . . is so arranged that with a proper succession of . . . excitations to action it will bring forth its characteristic series of numerical symbols." An important, perhaps the chief, element in these excitations is voluntary movement. The process of adding was studied (1) in the adding of columns of figures, and (2) in the timing of the addition of pairs of numbers. (1) Some observers simply added digit to digit up the column; others formed combinations of the figures lying just ahead. The combinations equaling 10 were most frequent. 'The tendency in grouping seems to be to add primarily by tens, then to add by nines which is ten less one,' etc. Errors seem to be caused by the influence of preceding figures delaying in the mind. The poor adders seek easy combinations; the best use a few combinations judiciously. "The trained apprehension of the sum of two digits is a process not unlike the recognition of the proper pronunciation of a word." (2) The experiments on the rate of adding seem to indicate that 'the sum was reached by an association which seemed practically as simple as that of reading.' The slowness of adding to the larger numbers is probably due to the difficulty of enunciation. Some of the introspective dicta, such as the difficulty of adding odd numbers and the transposition of figures to bring the larger digit first, are not supported by the chronoscope.

C. E. GALLOWAY.

UNIVERSITY OF MICHIGAN.

## FEELING AND EMOTION.

*Das Gefühlsproblem.* ROLF LAGERBORG. Leipzig, Barth, 1905. Pp. 141.

The problem of feeling is here attacked along the lines suggested by the James-Lange theory of emotion. Back of this lies the more general conception, that consciousness is in all cases due to the repercussion on the sensorium of reflexly excited bodily reactions.

The work has five main parts. Part I. seeks to confirm the preliminary assumption, that the basis of feeling is found in peripheral processes, by a comparison of feeling with attention. Attention, it is claimed, has been shown by recent study to be always, psychically, 'a *Totalempfindung* of peripheral and particularly motor reflexes,' a result supported, it is said, by the peripheral theory of the sense of

effort. Now certain feelings, such as effort and fatigue, resemble attention in that they too are evidently determined by peripheral conditions; indeed, according to our author, they differ from attention chiefly in containing more prominent visceral elements. Some feelings may even be defined, he thinks, as forms of attention; interest, *e. g.*, as an intensified, pleasurably toned attention, anger as a suddenly intensified attention with internal disturbances, etc.

The comparison seems to assimilate attention to feeling rather than feeling to attention. It leaves altogether out of account the characteristic phenomena of the latter, namely, the correlative focalization of the object and intensification of our awareness of it, and reduces attention to the feeling of attending.

It should be noted in passing that, in the author's opinion, the term 'feeling' should be applied only to the obscure non- or ill-localized sensations of 'common sensibility,' together with pleasantness and unpleasantness, and should not be used of compound states, like emotions, taken as a whole. This is a matter of definition, and, in the writer's opinion, one not to be recommended.

Part II., which is historical, contains an admirably lucid review of recent discussion of the James-Lange hypothesis. Lehmann's experiments, in particular, are acutely criticized and shown to be ambiguous.

Part III. treats of the mechanism of the affectional organic processes. The important visceral reflexes and part of the motor expression are referred to subcortical centers, but the nature of their stimuli is held to be obscure. The author adopts, in general, the principle of 'excess discharge.' The theory of the primacy of the vaso-motor reflexes is disputed; the different reactions are held to be mutually interdependent. This interdependence is explained as due to the irrigation of the blood as well as to association of the centers. The author further holds that the sequence and interaction of the organic changes are probably different in different cases, and that these variations are reflected in the total psychical impression. The theory criticized, however, suggests a nutrition hypothesis for pleasure and pain. This subject is discussed at length in Part IV.

That pleasure and pain are intimately connected with nutrition is implied, the author thinks, in the commonly accepted theories of these phenomena; the fact itself is illustrated in a number of examples. Can this idea be made more precise and probable as a general hypothesis? From an examination of the processes known or conjectured, first in fatigue and, again, in physical pain and in sensual pleasure (*Wollust*), and from

a comparison of these with unpleasantness and pleasantness, the author concludes that it, to some degree, can. He connects all these phenomena with specific processes of nutrition, more especially with the action of the toxins. Thus fatigue is conjectured to be due to a mild, the algedonic sensations to an increased or otherwise characterized intoxication. Pain and unpleasantness are connected with the action of the toxins formed, sensual pleasure and pleasantness with the return to the normal condition. Though the physiological mechanism is different, like processes of stimulation are believed to underlie both pain and unpleasantness; and similarly of sensual pleasure and pleasantness. The nutritive processes conjectured as the bearers of the algedonic sensations are included under the peripheral reflexes set up by unusual stimulation.

The general theory, then, is as follows: feelings are repercussions on the sensorium of extensive peripheral and, particularly, nutritive reactions, the latter influencing the quality of the blood and other fluids and inhibiting or promoting nutritive processes in the capillaries. Part V. discusses the nature of the irradiating stimuli which bring about these reactions, and also the process of the irradiation. The stimuli, it is held, are in all cases, in pleasure as well as in pain, excessive, abnormal, at any rate ill-adapted, relatively, that is, to the existing disposition. The irradiation is represented as essentially a process of adaptation, the breaking into new paths when the old paths of habit are insufficient. The feeling is dulled with repetition. Hence it 'is only an episode on the way taken by excessive stimulations to the full discharge in an act.'

In a 'Conclusion' the author extends his peripheral theory to the will and to consciousness generally. Will is resolved into psychical correspondents of motor reflexes and consciousness into a passive epiphenomenon of the processes set up conjointly by the stimuli and their bodily reactions.

In spite of its acuteness and learning, the argument leaves the reader unconvinced. The truth seems to be that we have no evidence in regard to feeling sufficient as yet to warrant more than rather vague working hypotheses. The author has given us one, and it should be tested. At present his nutrition theory seems to be a rather large superstructure erected on a highly conjectural foundation of fact. If the 'motor' or 'action' theory of consciousness, which the author mistakenly identifies with his own, should come to be established, the part played by the repercussion of the somatic excitement along afferent paths would have to be reinterpreted. If Sollier should succeed in

working out his doctrine of cerebral cœnæsthenia, the peripheral theory, as here presented, would have to be abandoned. And if Meining's *Phantasiegefühle* should come to be accepted as affording an exception to the law of dulling by repetition, the conception of feeling based on that law and, by parity of reasoning, of consciousness generally as only an episode in the process of organic adjustment, would have to be at least modified. All the main results of the work, therefore, seem doubtful. Nevertheless the book is an extremely able and instructive one, and no student of the subject can afford to overlook it. It is a small book, but its pages are packed.

*Sur les abstraits émotionnels.* L. DUGAS. *Revue philos.*, 1905, LX., 472-485.

Emotions, according to Ribot, become general or abstract either by the fusion of particular emotions, or by sharing in the generalization of the ideas they accompany. Dugas disputes this account. It is a prejudice, he thinks, to suppose that the process of intellectual abstraction is understood independently of feeling and that we have only to reason from the former to the latter by analogy. He contends that general ideas are themselves regularly formed, as Ribot admits that they are in exceptional cases, not by 'fusion,' after the manner of a composite photograph, but by a mental synthesis based on a sentiment, an interest. As to the generalization of the sentiment itself, it is brought about, he holds, in two ways; first, by its persistence in unfavorable circumstances, which yield it no proper satisfaction; second, by its persistence under favorable circumstances, by which it is enriched and developed. As an example of the former we have deceived and unrequited affection, where the feeling is said to be abstract, in that it is 'simplified'; of the latter, youthful passion passing into the purified sentiment of union, 'love in general' being the 'law' which unites the passion to the tenderness, or the 'nature' traversing the various stages of its evolution.

Any contribution to the vexed question of 'emotional abstracts' is welcome, and the present one is certainly not the least valuable and suggestive in the recent literature. But before any progress can be looked for, it is before all things necessary that some attempt be made to define precisely what the term means and to point out the various classes of facts for which it stands. When, therefore, is a feeling 'general' or 'abstract'? When it is conceived in respect to that which is fundamental and profound in it, replies Dugas. But is this what Ribot means when he speaks of the general emotional impres-



sion left on the mind by a visit to a monastery or by travel in a foreign country? Or are we to regard such general impression, with Saxinger, as a *Phantasiegefühl*, and distinguish the latter from the 'emotional abstract' proper? The whole subject seems full of obscurity. Dugas' own illustrations suggest two classes of abstracts; but while the first may be admitted as a psychical existent, the second looks suspiciously like the product of a psychological abstraction due to reflection on a connected mental process from without.

H. N. GARDINER.

SMITH COLLEGE.

*Experimentelle Beiträge zur Lehre vom Gefühl.* G. STÖRRING.  
Archiv f. d. ges. Psychol., 1905, VI., 316-356.

The purpose of the experiments is thus described by the author: "The investigation consists of experiments in which the pleasurable mood or tone (*Stimmungslust*) is sharply distinguished from the pleasure sensation on both its objective and subjective sides. I have induced the pleasurable mood experimentally and have contrasted it with pleasure sensation by an examination of its subjective psychical characteristics and of its objective characteristics as indicated by the pneumograph. I have sought to define unpleasant experience with the pneumograph. And, lastly, I have made experiments with the dynamometer which investigates the relation between feeling and will from a new point of view."

In view of the difficulty of accurately comparing moods which come in the ordinary course of experience, at more or less widely separated times, the author used for investigation the pleasurable mood ensuing upon swallowing a solution of agreeable taste, and contrasted it with the pleasure sensation experienced while the solution was in the mouth. To give a definite content to consciousness the subject performed work on a dynamometer during the experiment. The two sorts of feeling were found to have the following subjective differences. The pleasure sensation is a discrete part of consciousness, confined to the taste presentation, distinct from other contents of consciousness, from which the attention needs to be forcibly abstracted to begin work on the dynamometer. The mood, on the other hand, is diffused, it colors and amalgamates itself with all the content of consciousness, producing a widening of the field of consciousness and a freeing of the attention. The sensation of pleasure, moreover, declines during the experiment, while the mood does not. It should be said that the subjects of these experiments were trained psychologists.

Some marked objective differences were also found by means of the pneumograph. The author calculated the height, general level and frequency of both the thoracic and abdominal curves. For weak and moderately strong pleasure sensation he confirmed the finding of Zoneff and Meumann. The frequency of the breathing curve increased and the height diminished. For strong pleasure, however, the height of the curve also increased. As a result of the pleasurable mood, on the other hand, the frequency diminished, while the height increased for all degrees of strength. The abdominal curves varied in general with the thoracic. The curve level (niveau) showed no uniform variation.

The frequency and height of the curves during very strong unpleasant sensation showed great individual variations. All the subjects agreed in noticing very strong active tendencies, which, however, seemed to find an outlet in different reactions. The one factor which varied uniformly was the quotient of duration of inspiration over that of expiration, which diminished regularly.

The motor results of unpleasant sensations were measured with a dynamometer. The subjects preceded the contraction of the dynamometer successively by simple or undefined, by sensory and by motor preparation of the attention. Though sensory preparation seemed to be accomplished more easily and completely, the succeeding contraction did not show a correspondingly marked increase in intensity. This may, however, have been due to the imperfection of the instrument, for which the author intends in future experiments to substitute an ergograph. All the subjects of the experiment experienced a feeling of pleasure at the beginning of motor accomplishment, but the author concluded that this was not the cause of the increase of work performed. This increase was marked during unpleasant sensations for all three modes of preparation. The determination of the relative effect of the motor and the sensory preparation was prevented by the imperfection of the recording instrument.

FRANK N. FREEMAN.

YALE UNIVERSITY.

*Le Sourire*: G. DUMAS. Rev. Philos., 1904, LVIII., 1-23, 136-151.

In attempting to account for the expression of emotion, Spencer set forth the *Law of general diffused discharge*, a purely mechanical law which he formulated as follows in the Principles of Psychology, II., § 497; "Other things being equal, it [the diffused discharge] af-

fects the muscles in the inverse order of the sizes and weights of the part to which they are attached; and by so doing yields an additional indication of its quantity." This mechanical principle accounts, for instance, for the wagging of the tail in the dog and for the movement of facial muscles in man, in response to slight stimulation, but it does not explain why, in the case of the smile, only some of the facial muscles, and not all of them, are innervated. In order to provide for an adequate understanding of this and of other emotional expressions, psychological principles have been added to the mechanical ones. Darwin made use of the principles of serviceable associated habits and of antithesis, and Wundt of the principles of the association of related feelings and of the relation of the movements to sense representations.

Without at all denying to consciousness a rôle in the establishment of many emotional reactions, Dumas, unlike his predecessors in this field, is of the opinion that the original smile-reaction does not go beyond the purely mechanically conditioned. In the first of these two papers the author sets himself the task of showing, without going beyond physiological mechanics, why a moderate excitation, which, according to the law of Spencer, should affect all the facial muscles of equal weight, innervates only some of them, and thus produces the smile.

A careful examination shows that a complete smile involves the coöperation of 15 of the facial muscles, and that these muscles coöperate with each other, or at least that they do not oppose each other; while the other muscles neutralize each other or are neutralized by the contracting muscles. This means simply that the smile is the easiest movement of the face; it is a reflex, albeit a somewhat complicated reflex.

Whether the smile is due to purely mechanical forces or not, Dumas has made an important addition to the principles explanatory of emotional expression in taking into account the dynamic relation existing between the muscles, instead of considering them, as his predecessors had done, only in their isolation.

The fact that the facial muscles serve to express other moderate feelings than those manifested by the smile, as, for instance, a slight anger, may seem to some an argument against the sufficiency of Dumas' explanation of the smile. If a weak stimulation can result in different facial expressions, then the purely mechanical principle is inadequate. The answer of Dumas would be, I believe, that it is inadequate as regards anger. The facial movements observable in slight anger are to

be looked upon as the beginning of the full-fledged anger-expressions which may be satisfactorily accounted for on the Darwinian theory of chanced variations established because of their usefulness in the struggle for life. If thus accounted for, anger falls under different laws from the smile. At this point the remark will no doubt be made that there is as much reason for considering the smile as an attenuated laughter as there is for regarding certain expressions of displeasure as the first degree of anger. Dumas, however, is not of that opinion. In his first paragraph he affirms that if the smile is in certain cases the first degree of laughter, it is not always so; "it is frequently connected, without intermediary link, with the deeper laws of expression and of life." This occasional independence of the smile from laughter is a point which, it seems to us, demands further elucidation.

Dumas did not rest satisfied with the considerations and the observations we have indicated, he sought an experimental demonstration of his conclusions. With the collaboration of Dr. Dupont of Saint-Anne, he attempted to reproduce the smile by the electrification of the facial nerve. Of the four photographs which he gives us, only one may be said to reproduce a real smile. But, even though his experiments had been more successful than they were, they could hardly have been held conclusive. For, whatever may be the origin of the smile, when once established, it has become a psycho-physiological habit. One might then, it seems, expect a mechanical smile-response to a mild stimulation of the facial nerve, even though it were not the easiest movement of the face. Moreover, again, because of this habitual character of the smile, one might suspect a more or less unconscious completion of it when some of the muscles involved in a normal smile are mechanically stimulated.

In the second paper Dumas undertakes to show how this mechanical facial response to a moderate stimulation has become "the most social of all our expressive gestures." The reason of this is found, we are told, in the fact generally admitted by psychologists that moderate stimuli are pleasant. "It is therefore natural that the hypertonus expressing originally nothing more than the stimulation of the facial should have been early considered a sign of moderate joy, of pleasure, and that this purely physiological play of features should have spontaneously assumed a symbolic meaning."

The rest of this part is given up to a very subtle analysis of the varieties of the smile and, in particular, to the differences existing between the smile of laughter and the smile of pleasure.

JAMES H. LEUBA.

BRYN MAWR COLLEGE.

*La rôle des sensations internes dans les émotions et dans la perception de la durée.* D'ALLONNES. *Revue Philos.*, 1905, LX., 592-623.

M. D'Allonnes discusses the case of a patient who presented herself voluntarily at the hospital of St. Anne, Paris, complaining of a loss of emotions and of the lack of the sentiment of the passing of time. Peculiarly enough, moreover, at the very moment the patient complains of not feeling a certain emotion, she displays all its outward signs: all the apparent conditions of the emotion, intellectual and physical, subsist, and their coördination to actual circumstances is normal. Upon careful examination, she was found to suffer from a complete visceral anæsthesia, existing in a state of comparative purity, with no notable complications of visceral paralysis or of important anæsthesias either of the external senses or of the movements of relation. The skin, though insensitive to pain and thermal stimuli, was very nearly normal in regard to tactile sensations. The internal sensations and those of pain and temperature were lost at the same time as the emotions and the sentiment of time: and since the patient does not show the symptoms of a victim of a fixed idea, the only adequate cause of the disappearance of the affective states is the profound visceral anæsthesia. We thus see the affective sensibilities to lie in the visceral, pain, and temperature senses, as distinguished from the non-affective sensibilities of the specific external senses, and the tactile and muscular senses.

In the case of this patient is seen a clear separation of three sorts of time: First, the intellectual conception of time, which is intact; second, the affective sentiment of the lapse of short periods, from less than a minute to several hours, which is wanting; and third, immediate sensory-motor perception of time, as in rhythm, which is here merely enfeebled. The conclusion is that the feeling we have of actually living out the medium periods of time is conditioned by the internal sensations, in the heart of each one of which our physiological history of the past few hours persists in the state of tenacious affective impressions, whose vibration is not yet extinguished.

An interesting observation by the author is that in the absence of the affective nucleus, without which the emotion ceases to exist, *i. e.*, the internal sensations, there still remains a residue of sensations and ideas which systematize themselves into what are termed inclinations. The inclination is the residue of an emotion despoiled of its affective kernel. It is constituted by the sensations of external movements of relation and expression, by specific sensory data, memories, ideas,



judgments, and reasoning — the whole susceptible of tenacity and systematization and of exteriorization by words, by expressive movements, and by acts, in the absence of all emotion.

HERBERT WOODROW.

UNIVERSITY OF MICHIGAN.

### VALUES.

*Zur Frage der Wertbestimmung.* E. DÜRR. Archiv f. d. ges. Psychol., 1905, VI., 271-288.

Before examining three definitions of value as felt, Herr Dürr shows the validity of a scientific treatment of feeling. The objection that 'the theoretic aspects deal with the knowledge of things, while the practical aspects are concerned, not with the essence of things, but with our attitude towards such things' can scarcely hold. For if we consider that 'feelings are effects of determinate causes like other occurrences, they too can be subject to scientific treatment.' Moreover, 'the knowledge of the causation of feeling, and reflection on the feeling, still remains a function of cognition, and its relation to the essence of things cannot be inferred from the subjectivity of feelings' (p. 272).

Three definitions of felt value are then thoroughly discussed by Herr Dürr. First of all Kreibig's definition of value as 'in general a meaning given by feeling' is taken up. By value we mean, according to Kreibig, 'the signification which a perception- or thought-content has by virtue of its immediate or mediate connection with a feeling, actual or potential'<sup>1</sup> (p. 273). But as Meinong has shown,<sup>2</sup> many objects which may be considered of value do not excite a feeling of pleasure. The fact that a non-existing thing may have value, that some non-existing cause may excite pleasure, shows the falsity of the identification of pleasure-pain and felt value. If we bring up as an objection the impossibility of a non-existing cause operating to produce feeling, we only emphasize this fact. Even if we consider that in so-called non-existing objects the idea of such objects is the real basis of the value felt, we have in such a case the thought of the object felt as valuable. This will make all psychic processes the direct objects felt as of worth. Not only a non-existing object therefore, but the thought of such an object, may be the cause of a pleasure-pain feeling, and so

<sup>1</sup> Kreibig, *Psychologische Grundlegung eines Systems der Werttheorie*, Wien, 1902, p. 12.

<sup>2</sup> Meinong, *Psychologische-ethische Untersuchungen zur Werttheorie*, Graz, 1894, p. 16 ff.

Kreibig's definition does not hold (p. 273). Kreibig must face the dilemma of having either a non-existing object acting as a cause, or the thought of such object operating to produce feeling.<sup>1</sup>

The solution of this dilemma Herr Dürr sees in Meinong's explanation that the cause and the object of a feeling do not necessarily coincide. Very often the object of a pleasure-pain feeling is the felt value in question, while the immediate cause of the feeling may be something insignificant (p. 274). It seems that Meinong makes a distinction between the exciting cause of a feeling and the 'objective' of this feeling. No illustration is given to make this conception more clear. As far as I can make out the situation in question, some aspect of a given situation giving rise to a feeling of pleasure stamps the entire totality as of worth. For example (I hazard this illustration on my own responsibility) the color and position of objects in a painting may give the owner a feeling of pleasure, while the objective of such pleasure may be the fact that he has this picture all for his own use. The pleasure excited is directed to something other than the exciting cause.

Meinong furthermore differentiates ideation feeling from judgment feeling. The former presupposes some idea, while the latter in addition demands a judgment; and all feelings of value are judgment-feelings, *i. e.*, they are referred to an affirming or denying existential judgment as their psychological cause. Against this view Herr Dürr brings the case of the æsthetic judgment which has to do solely with a presentation, regardless of judged existence or non-existence; and also those cases in which presented objects excite in us feelings of value, not because of their abstract existence, but because of their power to excite in us feelings of pleasure. Moreover, Herr Dürr does not see how an object psychologically is different from its existence. Not only are there individuals who take pleasure in an object without being able to conceive of the value of its existence as such, but there are also examples in which possession is a factor in felt value. Consciousness of possession is something other than judgment of existence, and it, too, has bound with it feeling of worth.

To the third view of felt value we are introduced by von Ehrenfels' 'modification' of Meinong's definition. The function of judgment in the formation of existential feeling seems to the former to be a

<sup>1</sup> Is not Meinong here greatly in error? Is there not a confusion as to what constitutes the 'object' of thought? There is no such thing as an abstract thought. The object as non-existing is represented by a word which for purposes of reaction, etc., serves as well as the thing itself, or almost as well, and therefore, as a representative and present object, may be felt as of worth or value.

mediated one since it is determined by a certain degree of clearness and vividness of the ideas concerned. This, however, would make every idea a possible object of such determination, and therefore a possible basis of an existential feeling. If this is so, then every feeling can be an existential feeling, and as a determining factor, therefore, it loses its value. There will then be no difference between Meinong's ideation feelings and his judgment feelings.

Von Ehrenfels advances a theory of his own which is the last one which Herr Dürr discusses. Feeling of value according to the former is that feeling which is roused by the highest possible degree of clearness, vividness and completeness in the idea of the existence or non-existence of an object. Von Ehrenfels defines the worth of an object further as its desirability. Value is a relation between an object and its subject. The subject either actually desires the object or would desire it were its existence proven<sup>1</sup> (p. 280). Against this view Herr Dürr puts the question whether we desire what has value, or whether everything we desire has value on that account. May not that for which we strive as having value prove to be worthless, *e. g.*, sour apples with a pleasing exterior? Moreover, many things which we actually possess have value for us.

Herr Dürr concludes that desire and felt value have no connection and closes his discussion with his own definition. "Value is everything on which a feeling of pleasure depends" (p. 283). "It is everything to which a feeling of pleasure relates, or to which we know it can relate" (p. 287). Value is felt under the following conditions:

1. Through causal relations of an object to feelings of pleasure.
2. Through conviction of the existence or non-existence of a thing, situation or event which causes pleasure.
3. Through a mere assumption that the existence or non-existence of things, situations and events is bound with pleasure.
4. Through the idea alone of a thing, situation or event which rouses pleasure.
5. Through the conviction or assumption merely that possession of a thing or situation is bound with pleasure.

As examples of the first class we have the various agreeable and useful objects; of the second, the well-being of friends and relatives; of the third, metaphysical values as world systems, and the like; of the fourth, works of ideal and artistic nature; of the fifth, egoistic desires and strivings.

Now it seems to me that, thorough as Herr Dürr's presentation is,

<sup>1</sup> Chr. von Ehrenfels, *System der Werththeorie*, Leipzig, 1897, p. 65.

in his own definition of value he does not go far enough. It is too indefinite and from the psychological standpoint rather formal and without content. Pleasure depends upon a number of things, subjective and objective, upon the relation of the one to the other, upon the relation of the subject to himself at times. Even if this pleasure relation is known, it cannot help us as regards the constituents of felt value, as a psychic moment. As far as I can see, the definition of von Ehrenfels comes nearest to the facts in the case, but we can push his analysis back still further. There can be no question as to the existence of desire in some cases of felt value, or as to the fact that, as Herr Dürr points out, in possession of things felt as of worth desire cannot enter. Von Ehrenfels' definition is therefore only partially correct. What is the truth in the matter, it seems to me, is that motor reactions are at the basis of both desire and felt value. Hindrance due to lack of possession will give rise to a feeling of desire. Tendency to go through a series of reactions, which exists both in desire and feeling of worth, gives this feeling of worth. Where there is a hindering of complete serial explication, feeling of desire arises. Thus desire is present where the worth of nonpossessed objects is felt. The cause of such tendency to motor reaction is, as Herr Dürr suggests, either pleasure felt to be connected with the object, or known to be so connected. Pleasure includes feelings of satisfaction after reaction, etc. Where a given situation has yielded pleasure, there will exist a tendency to produce such situation once more. The object or objects concerned, either as means or end, will therefore be felt as of worth, such feeling existing as a felt tendency, a motor or body attitude, an impulse serially to react on the object or objects in question. Motor control, it seems to me, is the basis of feelings of value. If we are mistaken in our attitude towards an object, *e. g.*, the sour apples above mentioned, the apples in the first instance felt as valuable (the visual apples) are not the apples which disappointed us (the gustatory and motor apples). We must not confuse felt value, *i. e.*, subjective value, with objective, or social or average value.

FELIX ARNOLD.

NEW YORK CITY.

### ÆSTHETICS.

*Psychologie und Pathologie der Vorstellung. Beiträge zur Grundlegung der Aesthetik.* RICHARD WALLASCHEK. Leipzig, Johann Ambrosius Barth, 1905. Pp. x + 323. M. 8.00; gebd. M. 9.00.

"The older view of esthetics treated objects, and therefore had

only a subjective validity; we (*i. e.*, R. Wallaschek) intend to discuss the perceiving subject, and hope thereby to reach an objectively valid standpoint.

"We need not necessarily restrict ourselves to the influence of works of art. All pleasures, even those of the so-called lower senses, must be included in the field of esthetics, insofar as they are considered as such, and not incidentally. \* \* \* The author does not wish to offer a fully developed system of esthetics. Sensation, feeling and judgment would have to be considered in a manner similar to the treatment here given of the 'idea' if an independent and complete branch of knowledge were to be presented" (pp. iii, iv).

These few words of the introduction lead us to believe that we are to glide into the regions in which high and low art are to be appreciated, and we run over the table of contents. Here, however, esthetics takes a back seat, and indications seem to point towards a more or less psychological discussion. The various divisions<sup>1</sup> with the numerous subdivisions (there are over 150 of them), lead to the suspicion that the discussion is to be given in pieces, especially after the acknowledgment of the author that he is covering only part of the field of esthetics. On reading the work this suspicion becomes a strong belief. I may therefore take for granted the liberty of picking out the good parts, in piecemeal fashion, picking at the less good parts, in piecemeal fashion, and gathering together a few comments, in piecemeal fashion. For in this I shall but follow the author.

The good parts are all in the former half of the book, and are more psychological than esthetic. They deal for the most part with speech, song, reading, and writing, with a very brief and systematic presentation of the different pathological cases involved. Throughout this entire half there is an attempt made to work through and apply the modern conception of mental development as a process from a complete whole towards serial explication, a process of differentiation rather than one of integration. "Even in the beginning of purposive expression of feeling and will, we see that the single sound, the single movement, represent much more than a single word in developed speech, more even than a whole sentence. The psychic disposition which leads to the expression is much richer. When a child calls

<sup>1</sup> The contents are: Part I., 'Mental Expression and its Diseases.' I., Speech; II., Song; III., Reading; IV., Writing; V., Mimicry, Gesture, Action; VI., Explanation of the pathological cases thus far presented. Part II., 'Inner Mental Life; Nature and Succession of Ideas.' I., Nature of the Idea; II., Association of Ideas and Sensations; III., Memory; IV., Natural and Artificial Diseases of the Idea; V., Natural and Artificial Sleep (Hypnosis).



'Mama,' he has more than a mere presentation of her. If he were to give full (verbal) expression to what at that moment is going on in his mind, he would have to begin a whole story, and as he also goes through some action, he would have to present a whole scene. The mental process which is going on within him, and which he wishes to express, would be somewhat as follows: I have noticed this or that, I am afraid of it, I need help, You have protected me so often, Take me and quiet me once again" (p. 5). In teaching reading, therefore, the method most in agreement with mental development is to present whole sentences with meaning to the children (such sentences to emanate from the children and not to be forced upon them) and to proceed by analysis to the word and the letter. In writing, a similar process takes place. We do not learn to write (*i. e.*, the best way) by adding letter to letter (as a psychic process). The mental disposition is concerned with some thought-whole which finds expression through writing, in serial order. In learning new movements, when we go through a series of disparate and disconnected actions, we do not by this means learn the new exercise, as a whole. The whole is something more than a chain-like arrangement of parts. For example, in learning to swim, it is much more profitable to imitate a good example and then, after a number of attempts at the whole exercise, learn its parts as a development out of this whole, than to begin in the reverse order. And so with music and other forms of expression.

Concerning the psychology of music, the emotional element is something different from the ideational, the one receding as the other advances. In fact, words in music have frequently little significance, as many operas bear witness.

Thus far, with the possible exception of a very full account of music and musical aberration, the esthetic seems to be even less than a subtitle. The psychological account, however, is good as far as it goes, but it does not go far enough. Herr Wallaschek still clings to the 'cerebral' treatment of the older psychology, though free from some of its atomistic implications; but he entirely neglects the motor side of mental life, the importance of the 'attitude' in meaning, interpretation, and the like. He often is in danger of straying into the right path, but he never does so.

This 'cerebral' tinge is evident still more in his treatment of ideation. As regards the 'nature' of ideas, we are presented with the usual division of the visual type, the motor and the auditory. Of these different types, the motor is of the most importance, so Herr Wallaschek affirms, especially in music. This division gives, it seems to

me, not the 'nature' of the idea, but rather the various *kinds*, and we have in such a classification the much prevailing confusion in psychology, between the connotation and the denotation of its terms.

In the treatment of the association of ideas and sensations, the 'cerebral' or associationist view is again evident, in Herr Wallaschek's 'discovery' of what he calls 'secondary' sensations. Secondary sensations are those which are revived by some original or primary impressions from without. For example, when a person hears a sound or tone he may, due to this excitation, see a color, such color being centrally excited (colored audition). This may happen in various combinations with the other senses. We may have tactile audition, olfactory audition, gustatory audition, etc. As an explanation of colored and other audition, Herr Wallaschek offers the theory that it is due to cerebral excitation due to blood diffusion. When an auditory excitation arrives, the blood vessels in the corresponding parts are so well supplied with blood that the diffusion spreads to neighboring centers (?). This *may* have something to do with the matter, but it can hardly be the whole cause. If Herr Wallaschek would stick to his first basis, *i. e.*, differentiation from an experienced totality, perhaps he would come nearer to the facts in the case.

He also tries to apply this theory of secondary sensations to an explanation of instinct. "Why does the cow avoid poisonous herbs? Is this instinct inherited from previous generations? It is a question, in fact, whether acquired experiences can be transmitted, and it is also a question how on earth an instinct operated for the first time. It is, however, certain that the cow which had the first experience, viz., that the pleasure of eating was followed by death, could not have bequeathed this experience, and for want of proper expression could not have communicated it to its comrades in the herd. \* \* \* When, however, the sight and the smell of the poisonous herbs revive secondary sensations of taste, of a kind and effect as if the herbs had been enjoyed, then we can understand why the cows leave them alone" (p. 191). Leaving aside any explanation by natural selection (the fool cows dying, and leaving those with more sense), or the fact that a fat, unwieldy cow kicking and rolling around is expression enough for the most obtuse of its fellows in the herd, I think Herr Wallaschek again leaves the psychological standpoint with which he started (differentiation of a total given) and reverts to atomistic and cerebral explanation.

It may be of interest to note the theory of memory which is presented. "If, then, the hypothesis is correct that memory is simply an inhibited reflex, held back by either impressions from the same sense,

or ones from other senses, then it would be easy to see that in consequence of the inhibition of certain nerve centers or paths, the trace of all previous sense impressions would become weakened. In such a case, a single new impression, or a single uninfluenced trace of an impression would become active as a reflex, since it would not be held back by any active connection" (p. 199). This view of inhibition, etc., is again a more or less atomistic (Herbartian?) standpoint, and again a neglect of the influence of motor adjustment at present so well presented in Münsterberg's *Aktionstheorie*.

The rest of the book is taken up with the abnormal excitation of ideas, sleep and hypnosis, presented in the same piecemeal fashion as that which has gone before. I fear I should go to pieces myself if I were to attempt any further selections (I have given all that is 'best' in the book), so I shall finish my piecemeal remarks by a few comments on the esthetic value of the book, which in this connection, is 'few and far between.'

The entire work of Herr Wallaschek is a good example of solipsism. While, no doubt, the existence of any given, esthetic or otherwise, requires the activity of some agent, still a study of the mental processes of this agent (psychology) is not enough if we are to consider the 'situation' in its totality. Some 'objective' analysis is necessary. So esthetics, if it is to be treated adequately, whether in part or not, must receive some objective and inductive consideration.

I wish to touch somewhat on the esthetic, though it is treated as a step-child or a needy relation by Herr Wallaschek. His hint in the preface, which I have quoted above, that esthetic appreciation has but subjective grounds, is a popular fallacy, and has been presented by Kipling in the following:

They builded a tower to shiver the sky and wrench the stars apart,  
Till the Devil grunted behind the bricks: 'It's striking, but is it art?'  
The stone was dropped by the quarry-side, and the idle derrick swung,  
While each man talked of the aims of art, and each in an alien tongue.

Surely art and the esthetic will remain a 'conundrum of the workshops' so long as humanity is content to follow the opinions on this subject of short-haired women and long-haired men. Esthetics, however, as a study of certain aspects of given situations, is subject to scientific method as are other aspects. We know, for example, that certain combinations of color are pleasing, that certain positions of figures and groups in painting are necessary to produce pleasure, that the whole (*i. e.*, the figures, etc.) should fit a more or less geometrical outline, that certain arrangements of figures in statuary are necessary

to bring into relief the main figure, that certain general divisions are necessary in design, and so on. This and much more concerns esthetics. We can at least lay down minimum and restrictive laws.

If the subjective aspect is to be considered, we might speak of the psychology of esthetics, in which case we should restrict our psychological treatment to the mental states and attitudes produced by the esthetic features of different situations. A thorough study of the attitudes which go with the ideational content, other than the emotional disturbance, is I think a work which will lead to some valuable results in this field. The explanation of the subjective moments solely by means of atomistic compilation or cerebral mechanism is gradually slipping away, and needs to be supplanted by the more modern study of body attitudes and motor adjustments.

FELIX ARNOLD.

NEW YORK CITY.

#### ETHICS.

*Principia Ethica.* GEORGE E. MOORE. Cambridge, University Press, 1905. Pp. xxvii + 232.

Mr. Moore's book is characterized by distinctness of purpose, sharp analyses, and a good and readable style. The two fundamental distinctions upon which its main arguments rest are as old as Aristotle, but they are worked out with unusual thoroughness. The plan of the book is to criticise ethical theories considered erroneous by the author, using the fundamental distinctions as touchstones, and then to elaborate the considerations that render these theories merely plausible. In the course of the discussion many interesting problems come into view.

The first distinction is between the in-itself-good and the good-for, between the 'kind of things that ought to exist for their own sakes' and the 'actions that we ought to perform,' the author believing, quite properly, that the failure to keep constantly in mind this distinction is responsible for much confusion in ethical thinking and writing.

The second distinction is between the connotation and the denotation of 'good.' And the failure to bear it and especially the exact connotation of good clearly in mind, is held to give rise to the 'naturalistic fallacy,' which is the ethical fallacy *par excellence*, and consists in hastily asserting that good is or means pleasure, health, fullness of life, etc., when it is or means none of these, but only and always just itself, though some of them are no doubt good things. The motto of the book is Bishop Butler's pregnant tautology, Everything is what it is, and not another thing.

On the basis of these two distinctions Mr. Moore divides his discussion into three parts, the first dealing with what good is, and, more at length, with what it is not; the second with the rules of conduct; and the third with the discovery and discussion of the things that are greatly good in themselves. The introductory drawing of distinctions and Part I. constitute the main body of the book, as the author's main object, as stated by him, is 'the discovery and establishment of the fundamental principles of ethical reasoning, rather than of any conclusions to which they may lead.'

We have, of course, to agree with Mr. Moore that 'good,' *i. e.*, goodness, that which constitutes a good thing good, is not pleasure or any other thing, but just goodness, and there is much clearness of thought in his explanation of the misleading plausibility of metaphysical, hedonistic, and evolutionary theories, though his arguments do scant justice to the light thrown by evolution on ethics in recent discussions, his criticism being limited to Mr. Spencer. I find myself unable to follow him, however, when he argues that good is a simple quality, like yellow or bitter, discernible but indefinable. He justifies his position by pointing out that 'good' must be simple, because in it no parts can be found. But neither can we find parts in 'fatherhood' or 'kingship' by scrutinizing the men who are fathers or kings, because, of course, their essence is not 'in' them as a quality, but in their relations to other beings, which relations are sufficiently complex. And similarly goodness is, I should say, just satisfactoriness, not satisfaction, nor any one quality in the satisfactory things or satisfied beings. If this view is correct some things are satisfactory because of one quality or group of qualities, others because of others, and goodness, like loveliness, desirableness, and, I should add, pleasantness, is not one thing to all men, or even to any one man at all times, but many things.

And this explains how Mr. Moore is able to say, 'I believe *the* good to be definable: and yet I still say that good itself is indefinable'; a term indefinable in connotation, while definable in denotation! He can, namely, pick out the essence, possibly even the goodness, of each group of good or satisfactory things, but he cannot discern the good qualities common to them all, for there are none.

These things are worth pointing out because, as the author is at pains to insist, and rightly, a scientific ethics, in addition to reaching right conclusions, is called upon to give right reasons for them. Good men accomplish the former, but only competent scientists the latter. Mr. Moore's conclusions in Part I. seem to me in the main secure and



valuable. The author may be mistaken in holding that the goodness of pleasure is not in its pleasantness, that of fullness of life in vitality, that of a good will in its chosen efficiency and wisdom; though, of course, each may on occasion be good for other reasons too. But he is assuredly right in maintaining that no one of these things is alone good, there being several classes of good things.

Passing over the judicious discussion of right conduct, we come to the main thesis of the last chapter, that the pleasures of human intercourse, and æsthetic enjoyment, are the two things greatly good, which is interestingly set forth at some length. Here the objection would seem to be to what is excluded, rather than to what is included. Surely other things are greatly good. If doubt exists, ask the camper about fullness of life, the participator in large enterprises about a steady and reasonable will, a clear and smoothly running mind, power efficiently exercised for a worthy object, or a worthy national chief executive about a well organized state in a rich country, peopled with worthy citizens. There are circles in these suggestions as must be the case if activities are to be included among our greater goods, and wise men have considered them, rightly I think, to be the greatest. But the alternative is to strangle life by logic, and count among human goods only emasculated passivities.

S. E. MEZES.

UNIVERSITY OF TEXAS.

*Società e Ideale Etico.* E. MORSELLI. *Rivista Filos.*, Nov.-Dec., 1904; Jan.-Feb., 1905.

What is the relation of the study of society to the ethical standard? Does it afford any light upon the respective values of the conflicting ideals—individualism and socialism—which compete for approval to-day? Spencer's individualism is not derived from his biology; indeed the conception of individualism is brought into union with the biological principle of adaptation to environment by an optimistic teleology like that of the orthodox economists. Neither is the individualistic goal which he foresees warranted by the course of society thus far. For society finds itself obliged to multiply rather than decrease its functions. Nor is it legitimate to confound, as Spencer does, individuality with independence. Individuality does increase with social progress; but this very increase means an increase of needs and hence of dependence. Wundt's theory of the will, presenting an ideal which subordinates the individual to the whole, is a legitimate development of German idealism. But both aspects of the theory, (1) that the will is the good, and (2) that the universal will, just because it is universal, is good, encounter difficulties if applied to

the test of social laws. For the complexity of social facts prevents us from making any one principle, such as pleasure, interest, sympathy, or even will, the single principle; and to say that the universal, purely as universal, is superior to the individual is to hypostasize the general in an inadmissible fashion.

On the other hand, can we dispense entirely with the conception of an ideal? Lévy-Bruhl in his suggestion that the old conception of the ideal must give place to that of a *science des mœurs* falls into an error the opposite of idealism. For to point out imperfections in conduct implies the conception of a higher type of social order. The doctrine of a *science des mœurs* also raises the question, treated by Windelband and Rickert, as to the uniqueness of the historic, and consequently as to the possibility of establishing any such science.

Positively, a study of society shows that both aspects—that of social dependence or the moral consciousness, and that of independent activity—are present as moving forces: the first, dominant in primitive society, the latter, soon emerging. And it is possible to find in present society growing recognition of both these forces. Thus socialism now claims that it is not opposed to individualism but rather affords the only true means for the realization of individualism. It maintains that Nietzsche, the individualist, 'is one of us,' for he believes in humanity, the great humanity of the future.

A correlate tendency, namely that of socialization in the camp of individualism, is indicated in the growing conviction that the individual can develop only by the aid of society. The aspirations for the various goods, material, intellectual, æsthetic, which are desired by the rising individual can be secured to him only by the protection of the state. The necessity of equality in privilege, the barbaric crudity of luxury, are other suggestions which social progress is teaching.

"The social regimentation is in contradiction with the laws of life. When we have comprehended this, can we hesitate?"

J. H. T.

## DISCUSSION.

### A NOTE ON COLOR-DISCRIMINATION IN THE CREEK CHUB.

Mr. Peterson, reviewing in the *PSYCHOLOGICAL BULLETIN* for May 15 (page 169) our study entitled 'The Establishment of an Association Involving Color-Discrimination in the Creek Chub, *Semotilus*

*atromaculatus*,' says, "The experimenters conclude that \* \* \* such 'successes' as the getting of food have powerful enough consequences to *guide*, but not to *inhibit* 'an animal in the performance of an instinctive action.'" He adds, "The positive part of this conclusion seems to have good grounds, but the negative is certainly founded on too meagre data." This criticism is based on an obvious misunderstanding of our statements. What we said was, "Experience involving pleasurable consequences in connection with one object and the absence of such consequences in connection with another object *may* be powerful enough to guide an animal in the performance of an instinctive action, but not powerful enough to suppress the performance of such an action." It never occurred to us to deny, in the face of the experiments of Möbius and Triplett, that experience may entirely suppress the biting instinct in the fish; we were pointing out that it also *may fail* to do so and yet be extremely efficient in the guidance of instinct.

It also puzzles us to conjecture what advantage would be obtained by experiments where food should be exhibited with both colors, as the reviewer suggests; inasmuch as all our conclusions regarding color-discrimination were based solely and entirely on experiments made with food in neither forceps, where, in consequence, the sight of the food was wholly eliminated as a factor.

MARGARET FLOY WASHBURN.

I. MADISON BENTLEY.

#### BOOKS RECEIVED FROM MAY 5 TO JUNE 5.

*Les révélations de l'écriture d'après un contrôle scientifique.* A.

BINET. Paris, Alcan, 1906. Pp. viii + 260. Fr. 5.

*On the Founding of Colonies of Queen Ants.* W. M. WHEELER.

Extr. fr. Bull. Amer. Mus. Nat. Hist., XXII (4), 33-105. May, 1906.

*Il vero nella Matematica.* G. VERONESE. Disc. inaug. Univ.

Padova. Roma, Tip. del Senato, 1906. Pp. 39.

*Atti del V Congresso internazionale di Psicologia (Roma, Apr., 1905).* Ed. by DE SANCTIS. Roma, Tip. del Senato, 1906.

Pp. 798. L. 20.

*The Subconscious.* J. JASTROW. Boston, Houghton, Mifflin & Co.,

1906. Pp. xiii + 549.

*Perjury for Pay.* W. P. KING. Kansas City, Burton Co., 1906. Pp. 312. \$2.

*The Philosophy of Religion.* H. HÖFFDING. Trans. by B. E. MEYER. London & New York, Macmillan, 1906. Pp. viii + 410.

*The Origin and Development of the Moral Ideas. Vol. I.* E. WESTERMARCK. London & New York, Macmillan, 1906. Pp. xxi + 716. \$3.50.

*The Psychology of Reading.* W. F. DEARBORN. Col. Univ. Contr. to Philos., etc., XIV., 1. New York, Science Press, 1906. Pp. 134.

---

### NOTES AND NEWS.

THE New Jersey Training School for Feeble-minded Girls and Boys, at Vineland, N. J., has established a department of psychological investigation. We are informed that work will be started along various lines, notably upon investigations analogous to those of Dr. Meyer at the New York Pathological Institute. The neurological work will be done at the Wistar Institute in Philadelphia, in co-operation with Dr. Donaldson. Henry H. Goddard, Ph.D. (Clark), has been called to the position from West Chester (Pa.) State Normal School. He will spend the summer abroad and enter upon his duties in September.

DR. K. DUNLAP, of the University of California, has been appointed Instructor in Experimental Psychology in the Johns Hopkins University.

THE following are taken from the press:

S. P. HAYES, fellow in psychology at Cornell University, has been appointed to take charge of the psychological laboratory of Mount Holyoke College, in place of Dr. Kate Gordon, resigned.

DR. CHARLES H. JOHNSTON, of the State Normal School at Stroudsburg, Pa., will fill the place of Professor H. H. Horne, of Dartmouth College, during the coming year. Professor Horne has been granted leave of absence and will spend the year abroad in travel and study.

PROFESSOR BIRD T. BALDWIN, Ph.D. (Harvard), of the West Chester State Normal School, will have charge during the coming year of psychology and educational psychology at Swarthmore College, where a new training school for teachers is being organized.

